No. 9700296

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Saskatchewan Wheat Pool

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'CDC Kendall'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twelfth day of September, in the year two thousand one.*

Attest:

Paul M. Zurbuch

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

MAH 8/27/01

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Saskatchewan Wheat Pool

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
TR-133

3. VARIETY NAME
'CDC Kendall'

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
2625 Victoria Ave
Regina, SK
S4T 7T9
Canada

5. TELEPHONE *(include area code)*
(306) 569-4448

6. FAX *(include area code)*
(306) 569-4897

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PVPO NUMBER 9700296

FILING DATE: May 12, 1997

7. GENUS AND SPECIES NAME
Hovdeum Vulgare

8. FAMILY NAME *(Botanical)*
Poaceae

9. CROP KIND NAME *(Common name)*
Barley

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 2450.00
DATE: May 12 1997
CERTIFICATION FEE: $ 320.00
DATE: 8/27/01

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Saskatchewan, Canada

12. DATE OF INCORPORATION
1924

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Mr. Monte Kesslering
Saskatchewan Wheat Pool
2625 Victoria Ave
Regina, SK
S4T 7T9 Canada

14. TELEPHONE *(include area code)*
(306) 569-4448

15. FAX *(include area code)*
(306) 569-4897

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes," answer items 18 and 19 below)* ☐ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☒ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☒ YES *(If "yes," give names of countries and dates)* ☐ NO

U.S - May 15, 1996 Canada - May 16, 1996

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
Matt Dal			
NAME *(Please print or type)*		NAME *(Please print or type)*	
Monte D. Kesslering			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Manager, Seed Department	May 9/97		

STD-470 (03-96) *(Previous editions are to be destroyed)*

(See reverse for instructions and information collection burden statement)

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(Exp. # ~~TR-133~~) 'CDC Kendall'

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Exhibit A. Origin and Breeding History

_____ (exp. # Tr-133) is a two-rowed spring barley developed from the cross Manley/SM 85221 made in the field in 1986 by Dr. Bryan Harvey at the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan. It was selected in single plant nurseries in generations F2 - F4, a single row nursery in F5 and in yield trials in F6 and F7 under the test number SM90144 and entered into the Canadian, Western Cooperative 2-row barley preregistration test for three years, 1992-94, under the test number TR-133. TR-133 was tested in the U.S. Western Regional Spring Barley Nursery in 1996.

TR-133 is a malting quality barley that is adapted to the irrigated and dryland regions of Western Canada and the Intermountain areas of the Pacific Northwest USA

Breeder seed was derived from a bulk of long rows grown at the Crop Development Centre, Univ. of Sask., Saskatoon, SK, which were derived from F8 single plant selections.

Foundation seed was produced near Saskatoon, SK in the summer of 1995. Seed from this field was use to plant 20 acres near Yuma, Arizona in the fall of 1995. Subsequent production was harvested in April 1996 and due to Karnal bunt restrictions, this seed could not be moved into Canada. Registered and certified seed was planted near Bozeman, Montana in May of 1996 (May 15, 1996 first sale of certified seed in the U.S.).

TR-133 is a stable and uniform variety in agronomic appearance and performance across several generations (F6 through F10) and growing conditions. Agronomic data to support this stability are found in tables 1 through 9.

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'CDC Kendall'

~~TR133~~ was selected based on the following criteria:

Agronomic Characteristics
- Increased yield over Harrington
- Maturity similar to Harrington
- Improved lodging resistance over Harrington
- Absence of shattering at maturity

Disease Resistance Characteristics
- Resistance to stem rust
- Resistance to net blotch
- Resistance to root rot

Quality
- High test weight
- High percentage of plump kernels
- High level of malt extract
- High enzymatic activity
- Low protein content

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December 16, 1999

RE: TR 133 CDC KENDALL PVP APPLICATION

EXHIBIT A

SM 85221 is a University of Saskatchewan line which is in the public domain. Its parentage is Ellice/Harrington.

EXHIBIT C

Glume awn length of TR 133, under our conditions we find it is slightly shorter to equal in length to the glume.

As the originating institution for Harrington, we find it varies from equal to to greater in length than the glume.

Bryan L. Harvey
University of Saskatchewan

University Coordinator of Agricultural Research, Office of the Vice-President (Research), University of Saskatchewan
Room 204 Kirk Hall, University of Saskatchewan, 117 Science Place, Saskatoon SK S7N 5C8 Canada

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~~TR-133~~ 'CDC Kendall'

Exhibit B. Statement of Distinctness

_____(exp. # TR-133) is most similar to the variety "Harrington". However, TR-133 has lemma teeth where Harrington does not. Also, the glume awns of TR-133 are shorter than those of Harrington (TR-133 = ½ the length of the glume, Harrington = equal to the length of the glume). These comparisons along with a complete objective description show TR-133 to be a distinct and novel new barley variety.

Exhibit C. Objective Description (see pages 5 and 6)

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TR-133

FORM GR-470-5
(11-1-72)

FORM APPROVED. OMB NO. 40-R3712

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY *(HORDEUM VULGARE)*

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*

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PVPO NUMBER 9700296

VARIETY NAME OR TEMPORARY DESIGNATION ~~TR-133~~ 'CDC Kendall' MAH 8/27/01

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (i.e. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

[1] 1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER

[3] Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT

2. MATURITY (50% Flowering):

[2] 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

[3] [8] No. of days *Earlier* than .....

[6] [9] No. of days *Later* than .....

1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8=Klages 9=Steptoe

3, PLANT HEIGHT (From soil level to top of head):

[3] 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

[0][6] [8] Cm. *Shorter* than .....

[0][7] [9] Cm. *Taller* than .....

1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON 5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8=Morex 9=Steptoe

4. STEM:

[1] Exertion *(Flag to spike at maturity):* 1 = 0 - 3 cm. 2 = 3 - 10 cm. 3 = 10 - 15 cm.

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[0][5] NO. OF NODES (Originating from node above ground)

[1] Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN 4 = MODIFIED CLOSED OR OPEN

[1] Shape of Neck: 1 = STRAIGHT 2 = SNAKY 3 = OTHER (Specify) _____

5. LEAF:

[1] Basal leaf sheath *(seedling):* 1 = GLABROUS 2 = PUBESCENT

[2] Position of flag leaf *(at boot stage):* 1 = DROOPING 2 = UPRIGHT

[2] Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY

[1][3] MM. WIDTH (First leaf below flag leaf)

[1][7] CM. LENGTH (First leaf below flag leaf)

[1] Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

[1] Type: 1 = TWO-ROWED 2 = SIX-ROWED

[2] Density: 1 = LAX 2 = ERECT (Not dense) 3 = ERECT (Dense)

[2] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) _____

[2] Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY

[1] Lateral Kernels Overlap: 1 = NONE 2 = AT TIP 3 = 1/4 - 1/2 OF HEAD

[3] Rachis *(Hair on edge):* 1 = LACKING 2 = FEW 3 = COVERED

7. GLUME:

[2] Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA 3 = MORE THAN 1/2 OF LEMMA

[2] Hairs: 1 = NONE 2 = SHORT 3 = LONG

[4] Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

MAH 08/2001 [2] Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES 3 = MORE THAN EQUAL TO LENGTH OF GLUMES

[3] Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

~~TR-133~~ 'CDC Kendall' mar# 8/27/01 9700296

FORM GR-470-5 (Reverse)

8. LEMMA:

[5] Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike) 5 = LONG (longer than spike) 6 = HOODED

[3] Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

[3] Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS

[1] Hair: 1 = ABSENT 2 = PRESENT

[1] Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE

[2] Rachilla Hairs: 1 = SHORT 2 = LONG

9. STIGMA:

[2] Hairs: 1 = FEW 2 = MANY

10. SEED:

[2] Type: 1 = NAKED 2 = COVERED

[1] Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT

[3] Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.) 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)

[3] Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED

[1] Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE

[0][1] PERCENT ABORTIVE

[4][1] GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[1] SEPTORIA	[1] NET BLOTCH	[0] SPOT BLOTCH	[0] POWDERY MILDEW
[1] LOOSE SMUT	[0] BACTERIAL BLIGHT	[2] COVERED SMUT	[2] FALSE LOOSE SMUT
[1] STEM RUST	[0] LEAF RUST	[0] SCAB	[1] SCALD
[0] AY	[0] BSMV	[0] BYDV	[0] OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)

[0] GREEN BUG	[0] ENGLISH GRAIN APHID	[0] CHINCH BUG	[0] ARMYWORM
[0] GRASS HOPPERS	[0] CERIAL LEAF BETTLE	[0] OTHER (Specify)	

HESSIAN FLY RACES: [0] GP [0] A [0] B [0] C [0] D [0] E [0] F [0] G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] DDT [0] OTHER (Specify)

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Harrington	Seed size	Harrington
Leaf size	Harrington	Coleoptile elongation	Harrington
Leaf color	Harrington	Seedling pigmentation	Harrington
Leaf carriage	Harrington		Harrington

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

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Table 1. Yield, in bushels per acre, of TR-133 compared to check varieties in the 1996 Western Regional Spring Barley Nursery.

Location	TR-133	Harrington	Klages
Sask, SK	99	83	89
Tulelake, CA	80	91	75
Idaho Falls, ID	128	143	135
Aberdeen, ID	127	142	131
Bonners Ferry, ID	102	98	79
Moscow, ID	80	76	73
Bozeman, MT	86	107	89
Manhatten, MT	143	137	128
Fairfield, MT	72	89	95
Williston, ND	76	79	80
Klamath Falls, OR	88	69	78
Logan, UT	80	88	64
Pullman, WA	70	72	70
Powell, WY	101	109	111
Mean	95.2	98.8	92.7

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~~TR-133~~ 'CDC Kendall' MAH 8/27/01

Table 2. Test weight, in pounds per bushel, of TR-133 compared to check varieties in the 1996 Western Regional Spring Barley Nursery.

Location	TR-133	Harrington	Klages
Sask, SK			
Tulelake, CA	45.5	46.5	4.8
Idaho Falls, ID	54.0	54.0	53.5
Aberdeen, ID	54.1	55.2	53.7
Bonners Ferry, ID	50.2	49.8	47.8
Moscow, ID	47.9	48.5	50.1
Bozeman, MT	53.5	53.0	50.7
Manhatten, MT	54.7	52.4	51.2
Fairfield, MT	54.1	55.4	54.4
Williston, ND	49.9	50.4	52.0
Klamath Falls, OR	54.5	55.5	55.0
Logan, UT	53.2	53.0	52.5
Pullman, WA	52.6	53.2	52.7
Powell, WY	53.0	54.0	53.0
Mean	52.1	52.4	51.6

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Table 3. Heading date, in Julian, of TR-133 compared to check varieties in the 1996 Western Regional Spring Barley Nursery.

Location	TR-133	Harrington	Klages	Steptoe
Sask, SK	204	202	204	197
Tulelake, CA				
Idaho Falls, ID				
Aberdeen, ID	179	180	183	173
Bonners Ferry, ID	205	207	208	197
Moscow, ID	191	192	192	186
Bozeman, MT	183	183	184	180
Manhatten, MT	185	185	188	180
Fairfield, MT				
Williston, ND	180	181	183	175
Klamath Falls, OR	191	192	193	189
Logan, UT	174	175	176	169
Pullman, WA	188	186	185	179
Powell, WY	180	180	180	171
Mean	173.5	173.8	175.0	167.7

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Table 4. Plant height, in centimeters, of TR-133 compared to check varieties in the 1996 Western Regional Spring Barley Nursery.

Location	TR-133	Harrington	Klages	Morex	Steptoe
Sask, SK	95	93	101	100	82
Tulelake, CA	117	112	107	130	109
Idaho Falls, ID	104	105	102	116	101
Aberdeen, ID	94	91	94	104	91
Bonners Ferry, ID	78	79	80	90	71
Moscow, ID	78	76	84	88	69
Bozeman, MT	70	66	62	78	69
Manhatten, MT	89	91	89	97	84
Fairfield, MT	78	78	80	86	66
Williston, ND	59	54	59	61	52
Klamath Falls, OR	80	70	70	70	60
Logan, UT	84	79	83	83	75
Pullman, WA	76	74	72	79	76
Powell, WY	76	70	81	82	69
Mean	84.1	81.3	83.1	90.3	76.7

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Table 5. Plump barley, percent over a 6/64" x 3/4" sieve, of TR-133 compared to check varieties in the 1996 Western Regional Spring Barley Nursery.

Location	TR-133	Harrington	Klages
Sask, SK	93	80	86
Tulelake, CA	68	66	55
Idaho Falls, ID	96	91	85
Aberdeen, ID	97	93	81
Bonners Ferry, ID	97	89	72
Moscow, ID	52	50	27
Bozeman, MT	90	96	68
Manhatten, MT	92	88	75
Fairfield, MT	96	96	88
Williston, ND	92	93	85
Klamath Falls, OR	94	93	87
Logan, UT			
Pullman, WA	94	93	71
Powell, WY	98	97	97
Mean	89.2	86.5	75.1

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~~TR-133~~ 'CDC Kendall'

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Table 6. Grain yield (Kg/Ha) in the Canadian Western Cooperative 2 Row Barley Registration Test 1992-94.

Variety	Soil Type			
	Black	Black & Grey	Brown	Overall
TR-133	5676	5787	4902	5342
Harrington	5246	5380	4824	5083
Manley	5772	6080	5325	5643
Station years	13	13	23	49

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Table 7. Agronomic Characteristics of TR-133 compared to check varieties in the Canadian Western Cooperative 2 Row Barley Registration Test 1992-94.

Variety	Heading days	Maturity days	Height cm	Test Wt. kg/hl	1000 Kernel wt. g
TR-133	60.9	98.4	78.9	64.7	42.6
Harrington	61.0	98.4	79.3	63.6	41.4
Manley	63.9	102.1	80.7	64.3	41.5

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~~TR-133~~ 'CDC Kendall'

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Table 8. Disease Reaction Summeries of TR-133 Compared to Check Varieties in the Canadian Western 2 Row Barley Registration Test 1992-94.

Variety	% Common root rot	% Smut			Stem rust	Net Blotch reaction (1-10) race			Scald Inoculated race	Scald Field observation (1-10)		
		nuda	*hordei*	*nigra*		102	858	857	1493	Edmonton	Lacomb	Calgary
TR-133	24.7	55	47	32	MRMS	6.3	7.7	3.3	MR-S	5.5	5.2	6.3
Harrington	30.9	86	51	59	MRMS-S	9.3	10.0	7.3	S	7.3	7.1	8.0
Manley	30.2	23	3	4	MRMS-S	5.0	6.0	4.3	S	6.7	4.6	4.9

MAH 10-22-01

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~~TR-133~~ 'CDC Kendall' 9700296

Table 9. Malting Quality Comparisons of TR-133 and Check Varieties in the Canadian Western Cooperative 2 Row Barley Registration Test 1992-94.

COMPARISION OF MALTING QUALITY OF HARRINGTON, MANLEY AND TR 133 BARLEY
(3 Years of Co-operative Tests)

	Plump %	1000 K. Wt. G.	Protein %	Malt ßeta-Glucan %	F. Ext. %	ßeta-Glucan ppm	Viscos. cps	70°C Ext. %	F/70° Diff. %	Soluble Protein %	Ratio S/t %	Diast. Power °L	Alpha-Amylase D.U.
1992													
BRANDON													
Harrington	87.6	46.3	11.8	1.18	76.5	718	1.59	69.4	7.1	4.45	38.7	100	49.8
Manley	91.2	45.2	11.1	0.85	78.4	531	1.56	72.8	5.6	4.46	41.7	122	54.4
TR 133	95.3	44.7	11.4	0.49	78.7	220	1.71	75.5	3.2	4.87	43.5	133	50.5
SASKATOON													
Harrington	85.2	44.3	12.9	1.65	75.1	813	1.62	66.8	8.3	4.22	33.3	110	48.5
Manley	90.7	46.1	13.7	1.44	75.1	687	1.64	68.8	6.3	4.13	30.6	136	50.2
TR 133	86.0	43.1	13.8	0.97	75.9	326	1.57	71.2	4.7	4.72	35.5	139	47.4
BEAVERLODGE													
Harrington	93.1	42.1	9.6	0.81	80.6	473	1.53	76.7	3.9	4.11	46.7	80	43.7
Manley	85.3	40.3	8.9	0.45	80.0	342	1.49	77.3	2.7	3.76	46.3	86	42.0
TR 133	91.9	41.1	9.4	0.57	80.7	253	1.61	78.5	2.2	4.35	48.9	96	43.8
1993													
REGINA													
Harrington	94.3	41.2	10.3		81.0	246	1.60	78.0	3.0	4.50	48.3	113	50.5
Manley	91.6	39.0	9.3		80.9	123	1.62	79.2	1.7	4.38	48.7	108	49.3
TR 133	96.0	39.4	10.0		81.3	93	1.59	76.5	4.8	4.37	47.0	106	54.0
PROVOST													
Harrington	71.6	37.1	11.8		78.4	240	1.66	74.3	4.1	4.22	37.1	86	48.6
Manley	86.7	39.9	10.0		80.5	108	1.61	79.2	1.3	3.95	41.1	102	50.9
TR 133	91.7	40.6	11.6		79.6	56	1.59	78.4	1.2	4.28	37.6	120	50.0
BRANDON													
Harrington	84.3	39.4	11.3		80.0	258	1.67	74.8	5.2	5.02	45.7	109	53.8
Manley	85.5	40.8	11.1		80.0	168	1.62	76.9	3.1	4.93	44.4	127	56.7
TR 133	88.6	36.7	12.8		79.3	39	1.55	77.3	2.0	5.58	44.6	154	61.4
1994													
INDIAN HEAD													
Harrington	89.0	40.7	10.8		77.9	226	1.44	76.2	1.7	4.22	41.4	94	51.9
Manley	86.4	41.2	10.2		80.5	141	1.45	78.1	2.4	4.22	44.0	108	52.3
TR 133	95.7	41.2	10.8		80.5	72	1.46	78.9	1.6	4.40	42.3	117	48.3
SWIFT CURRENT													
Harrington	88.1	39.7	9.5		79.2	98	1.41	78.3	0.9	4.43	43.9	105	52.9
Manley	67.2	40.3	10.8		78.5	70	1.36	77.1	1.4	4.23	40.7	113	50.3
TR 133	93.8	38.9	9.3		79.9	27	1.40	79.0	0.9	4.39	45.3	119	48.6
Harrington	87.8	40.3	13.5		77.1	153	1.45	75.5	1.6	4.97	38.5	121	47.9
Manley	76.1	41.1	12.5		77.6	123	1.45	76.0	1.6	4.61	36.3	133	50.2
TR 133	91.8	40.6	12.6		77.4	62	1.43	75.6	1.8	5.00	38.2	132	53.9
MEAN													
Harrington	86.8	41.2	11.3	1.21	78.4	358	1.55	74.4	4.0	4.46	41.5	102	49.7
Manley	84.5	41.5	10.8	0.91	79.1	255	1.53	76.2	2.9	4.30	41.5	115	50.7
TR 133	92.3	40.7	11.3	0.68	79.3	128	1.55	76.8	2.5	4.66	42.5	124	50.9
STANDARD DEV.													
Harrington	6.6	2.7	1.4	0.42	2.0	253	0.10	3.9	2.5	0.33	5.0	13	3.1
Manley	8.0	2.4	1.5	0.50	1.9	218	0.10	3.4	1.8	0.35	5.4	16	4.0
TR 133	3.4	2.3	1.6	0.26	1.7	109	0.10	2.5	1.4	0.43	4.6	18	5.1

Grain Research Laboratory
Canadian Grain Commission

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MH 7-23-01

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)
Saskatchewan Wheat Pool

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
TR-133

3. VARIETY NAME
'CDC Kendall'
MAH 8/22/01

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
2625 Victoria Ave
Regina, SK
S4T 7T9
Canada

5. TELEPHONE *(include area code)*
(306) 569-4448

6. FAX *(include area code)*
(306) 569-4897

7. PVPO NUMBER 9700296

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? [ ] YES [X] NO
If no, give name of country Canada

10. Is the applicant the original breeder? If no, please answer the following: [ ] YES [X] NO

a. If original rights to variety were owned by individual(s):
Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country Canada

[ ] YES [X] NO

b. If original rights to variety were owned by a company:
Is the original breeder(s) U.S. based company? If no, give name of country Canada

11. Additional explantion on ownership *(If needed, use reverse for extra space):*

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.